



205322

**QUARTERLY MONITORING REPORT  
GROUNDWATER TREATMENT SYSTEM**

**AMERICAN CHEMICAL SERVICE NPL SITE  
GRIFFITH, INDIANA**

**Montgomery Watson File No. 1252057**

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**Prepared For:**

**American Chemical Service  
Griffith, Indiana**

**Prepared By:**

**Montgomery Watson  
2100 Corporate Drive  
Addison, Illinois 60101**

**January 1998**



**MONTGOMERY WATSON**


**QUARTERLY MONITORING REPORT  
GROUNDWATER TREATMENT SYSTEM**


**AMERICAN CHEMICAL SERVICE NPL SITE  
GRIFFITH, INDIANA**

**Prepared For:**

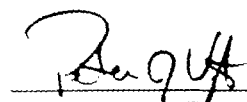
**American Chemical Service  
Griffith, Indiana**

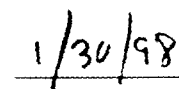
Prepared by:

  
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Srinivas S. N. Devulapalli  
Senior Engineer

  
\_\_\_\_\_  
Date

Approved by:

  
\_\_\_\_\_  
Peter J. Vagt, Ph.D., CPG  
Project Manager

  
\_\_\_\_\_  
Date

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## 1.0 INTRODUCTION

Montgomery Watson, on behalf of the ACS RD/RA Executive Committee, commenced operation of an on-site groundwater treatment system at the American Chemical Service NPL Site in Griffith, Indiana on March 13, 1997. This treatment system was designed to treat groundwater from the perimeter groundwater containment system (PGCS) and limited volumes of water from the Barrier Wall Extraction System (BWES). The treated effluent from the treatment system is discharged to the nearby wetlands, west of the treatment system in accordance with Agency approvals. The treatment train consists of a phase separator for oil and free product removal, equalization tanks, a UV-oxidation unit for destruction of organic constituents, an air stripper to remove methylene chloride and other organics, a chemical precipitation and clarification unit to remove metals, a sand filter to remove suspended solids, and activated carbon vessels for final polishing of the treated groundwater.

Although the majority of the treatment system capacity was originally designed to treat PGCS-associated groundwater, the system is also used to treat groundwater from the BWES. The groundwater associated with the BWES typically has higher contaminant concentrations than that of the PGCS due to their respective locations on the ACS site. Consequently, efforts are being expended to modify the treatment system to accommodate more of the BWES-related groundwater.

This is the second quarterly monitoring report for the treatment system, and therefore it summarizes all the effluent analytical data and water level gauging collected between August, 1997 and November, 1997. The first quarterly monitoring report was submitted to the United States Environmental Protection Agency (U.S. EPA) on October 8, 1997. During the second quarter, the groundwater treatment system operated on a continuous basis, generally 24 hrs/day at an influent flowrate of approximately 35 gpm. The effluent was discharged directly to the wetlands.

**Table 1.1 Operation Chronology**

Monitoring Period	Starting Date	Sampling Frequency
Month 4	9/13/97	Monthly
Month 5	10/13/97	Monthly
Month 6	11/13/97	Quarterly

Section 2 presents the effluent discharge limitations imposed by the Indiana Department of Environmental Management (IDEM) and the U.S. EPA for the wetland discharge. Section 2 also presents details of the analytical methods and summarizes the data collected to date. During the second quarter, there were no exceedances of the effluent discharge limitations.

## 2.0 COMPLIANCE MONITORING

### 2.1 INTRODUCTION

Effluent samples were periodically collected from the treatment system to demonstrate compliance with the discharge limits (Table 2.1) established by IDEM and the U.S. EPA. Effluent samples were collected in accordance with the sampling frequency delineated in the U.S. EPA approved PSVP, which is presented in Table 2.2. Sampling and analyses were performed in accordance with the approved Quality Assurance Project Plan (QAPP) prepared by Montgomery Watson for the ACS RD/RA Executive Committee in April 1997. The following sections present details on sampling and analyses, and also summarize the analytical data collected to date on the treatment system effluent.

### 2.2 SAMPLING AND ANALYSES

Effluent samples were collected directly from a sample tap on the effluent line just before it exits the groundwater treatment system building. All effluent samples were placed in contaminant-free containers, as specified in the U.S. EPA Specifications and Guidance for Obtaining Contaminant-Free Sample Containers (U.S. EPA, 1992). Appropriate sample containers and preservatives, as specified in the QAPP, were used to collect and preserve the samples. Following sample collection, the sample containers were refrigerated at 4° C in coolers. Chain-of-Custody forms were prepared to track the transfer of samples from the treatment system to the laboratories. The following analytical methods were adopted to analyze samples:

- |   |   |
|---|---|
| • VOCs  | (Analytical Method: SW-846 8260A)         |
| • SVOCs   | (Analytical Method: SW-846 8270B)         |
| • Pentachlorophenol                                   | (Analytical Method: SW-846 8270B and SIM) |
| • Pesticides/PCBs                                     | (Analytical Method: EPA 608)              |
| • Metals (Excluding Mercury)                          | (Analytical Method: SW-846 6010)          |
| • General Water Quality<br>Parameters (TSS and BOD-5) | (Analytical Method: EPA 160.2 and 405.1)  |
| • Mercury   | (Analytical Method: SW-846 7470)          |
| • pH  | (Analytical Method: EPA 150.1)            |

### 2.3 ANALYTICAL RESULTS

During the period of August 29, 1997, through November 28, 1997, the treatment system effluent has been in compliance with the discharge limitations in Table 2.1. A comparison of the analytical data collected to date with the discharge limitations is presented in Table 2.3.

The groundwater treatment system effluent pH was in the range of 7.0 to 7.9. Total suspended solids (TSS) were not detected during the compliance monitoring period and the five-day biochemical oxygen demand (BOD<sub>5</sub>) was always below the effluent discharge limit. In addition, the metal constituent concentrations were consistently below the effluent discharge limits. Finally, the regulated volatile organic constituent and semi-volatile organic constituent concentrations were below the effluent limits; typically, non-detect concentrations were observed for the majority of constituents. Detailed analytical reports are found in Appendix A.

**Table 2.1    Groundwater Treatment System Effluent Discharge Limits  
American Chemical Service NPL Site  
Griffith, Indiana**

<b>Groundwater Quality Parameter</b>	<b>Effluent Standard (Limit)</b>
<b><i>General Water Quality Parameters</i></b>	
BOD-5	30 mg/L
TSS	30 mg/L
pH	6 - 9 S.U.
<b><i>Inorganics</i></b>	
Arsenic	50 µg/L
Beryllium	NE
Cadmium	4.1 µg/L
Manganese	NE
Mercury	0.02 µg/L (w/DL = 0.64)
Selenium	8.2 µg/L
Thallium	NE
Zinc	411 µg/L
<b><i>Volatile Organics</i></b>	
Acetone	6,800 µg/L
Benzene	5 µg/L
2-Butanone	210 µg/L
Chloromethane	NE
1,4 - Dichlorobenzene	NE
1,1 - Dichloroethane	NE
1,2 - Dichloroethene - cis	70 µg/L
Ethylbenzene	34 µg/L
Methylene chloride	5 µg/L
Tetrachloroethene	5 µg/L
Trichloroethene	5 µg/L
Vinyl chloride	2 µg/L
4 - Methyl - 2 - pentanone	15 µg/L
<b><i>Semi-Volatile Organics</i></b>	
bis(2 - Chloroethyl) ether	9.6 µg/L
bis(2 - Ethylhexyl) phthalate	6 µg/L
Isophorone	50 µg/L
4 - Methylphenol	34 µg/L
Pentachlorophenol	1 µg/L
<b><i>PCBs</i></b>	
PCBs	0.00056 µg/L (w/DL = 0.1)

NE = No effluent limit established.

**Table 2.2 Sampling Frequency Scheme**  
**Groundwater Treatment System**  
**American Chemical Service NPL Site**  
**Griffith, Indiana**

Analytes	Cumulative Time From Startup*	Frequency
Flowrate and pH	–	Continuous
BOD, TSS, SVOCs and Metals	0 to 7 days	Once per day
	8 to 30 days	Once per week
	31 to 180 days	Once per month
	181 days onward	Once per quarter
VOCs	0 to 7 days	Once per day
	8 to 30 days	Once per week
	31 days onward	Once per month
PCBs	0 to 7 days	Once
	8 to 30 days	Once
	31 to 180 days	Twice
	181 days onward	Once per quarter
PCBs in Sediment (one location)	–	Once per year

\* Cumulative time from startup of the groundwater treatment system. Startup refers to the point at which contaminated groundwater from the extraction trench was being introduced into the treatment system. Startup occurred once the initial equipment/system testing with clean water was completed (March 13, 1997).

**Table 2.3 Summary of Compliance Monitoring Data**  
**August 29,1997 - November 28, 1997**  
**American Chemical Service NPL Site**  
**Griffith, Indiana**

Event	Month 4	Month 5	Quarter 1	
Date	9/22/97	10/20/97	11/19/97	Effluent Limits
pH	7.9	7.8	7.0	6-9
TSS	ND	ND	ND	30
BOD	29	6.0	13	30
Arsenic	0.0052 J	ND	ND	0.05
Beryllium	ND	ND	ND	NE
Cadmium	ND	ND	ND	0.0041
Manganese	0.028	0.087	0.14	NE
Mercury	ND	ND	ND	0.00002
Selenium	ND	ND	ND	0.0082
Thallium	0.0067 JB	0.0046 JB	ND	NE
Zinc	0.012 JB	0.022 B	0.022	0.411
Benzene	0.25 J	ND	0.39 J	5
Acetone	ND	ND	170	6,800.0
2-Butanone	ND	ND	ND	210
Chloromethane	0.62 J	ND	ND	NE
1,4-Dichlorobenzene	ND	ND	ND	NE
1,1-Dichloroethane	ND	ND	ND	NE
cis-1,2-Dichloroethene	ND	ND	ND	70
Ethylbenzene	ND	ND	ND	34
Methylene chloride	ND	ND	ND	5
Tetrachloroethene	ND	ND	ND	5
Trichloroethene	ND	ND	ND	5
Vinyl chloride	ND	ND	ND	2
4-Methyl-2-pentanone	ND	ND	ND	15
bis (2-Chloroethyl) ether	ND	ND	ND	9.6
bis(2-Ethylhexyl) - phthalate	ND	ND	ND	6
3/4 - Methylphenol	ND	ND	ND	34
Isophorone	ND	ND	ND	50
Pentachlorophenol	ND	ND	ND	1
PCBS	NS	NS	NS	0.00056

**Notes:**

Shaded cells indicate discharge exceedances  
pH data is expressed in S.U.  
TSS, BOD-5 and Metals data is expressed in mg/L  
VOC, SVOC and PCB data is expressed in µg/L

**Chronology Of Operation**

Month 4	9/13/97
Month 5	10/13/97
Quarter 1	11/13/97

**Suffix Definitions:**

B = Compound is also detected in the blank  
BQL = Below quantitation limit  
J = Result is detected below the reporting limit and is an estimated concentration  
ND = Not detected  
NE = No effluent limit established.  
NS = Not required to be sampled.

### 3.0 TREATMENT SYSTEM PROCESS MODIFICATIONS

The groundwater treatment system did not experience operational problems and there were no discharge limit exceedances during this quarter. However, in an effort to continually optimize the treatment system, the following process modifications have been made.

1. **Air Stripper Relocation:** The air stripper was relocated to upstream of the clarifier, immediately after the UV-Oxidizer. This relocation enabled the treatment system to more effectively remove methylene chloride and other volatile organics. The effluent from the air stripper is now discharged to a tank (T-1) which has a hydraulic retention time of 75 minutes. This retention allows the unused hydrogen peroxide (residual  $H_2O_2$  from the UV-Oxidizer) to breakdown into molecular gas-phase oxygen and water, which in turn prevents floating sludge in the clarifier.
2. **In-Line Caustic Addition:** The groundwater treatment system was retrofitted to add caustic in-line prior to discharge into the clarifier. Previously, caustic addition was accomplished in the rapid mix tank of the clarifier. This modified in-line caustic addition allows for better pH control during chemical precipitation of metals in the clarifier.
3. **Granular Activated Carbon Canister Addition:** Montgomery Watson added two 10,000 lb GAC canisters to the existing carbon canisters, to more effectively remove residual contaminants and provide a greater treatment capacity for the residual contaminants that are not removed by UV-oxidation, air stripping or precipitation.

In the future, the system will continue to be monitored and modified, as necessary, to improve treatment efficiency.

#### 4.0 PGCS AND BWES GAUGING ACTIVITIES

The PGCS trench groundwater extraction wells were operated in "auto" mode (semi-continuously) beginning May 19, 1997. A discussion on the groundwater elevations at the site was presented in the preceding quarterly monitoring report dated October 16, 1997. This section presents a discussion on the groundwater elevation findings during the months of September, October and November 1997. Groundwater elevation measurements were collected on September 22, October 14 and November 21, 1997.

The influence of the PGCS trench on groundwater flow patterns is illustrated by Figures 1 (September), 3 (October) and 5 (November). The direction of groundwater flow was from east to west during September, October and November 1997. These figures all indicate an inward gradient toward the PGCS. Due to muddy, flooded conditions, MW-46 was inaccessible in November, and therefore was not gauged.

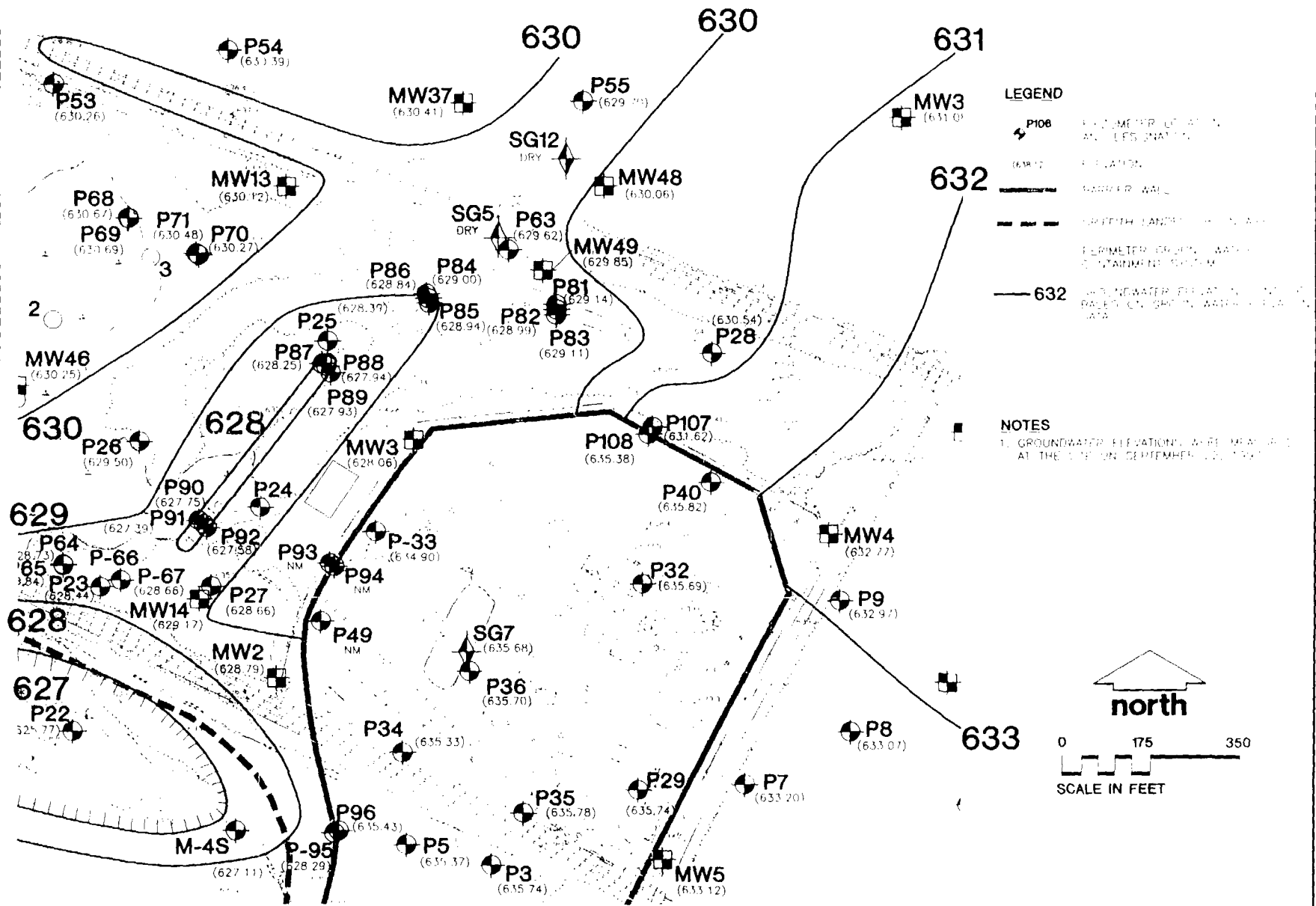
The barrier wall was constructed to isolate a highly contaminated zone and the BWES was installed to collect the contaminated water within the barrier wall. A series of 16 piezometers was installed in eight pairs, one piezometer of each pair on either side of the barrier wall at each of the BWES trench locations, to allow measurement and tracking of water level measurements. Figure 2 illustrates the barrier wall and piezometer locations. In order to ensure that the barrier wall was serving its design function, Montgomery Watson began monitoring groundwater elevations in these piezometers both inside and outside the barrier wall.

Groundwater elevations inside and outside the barrier wall were monitored on September 22, October 14 and November 21, 1997. Only five pairs of piezometers were operational on September 22, 1997, (piezometers P93 and P94 could not be located because they had been covered with road gravel) as illustrated by Figure 2. Also, P101, P102, P103, P104, P105 and P106 had not yet been installed in September because the surface completion and grading near the barrier wall were still underway in these areas at that time. Figures 4 and 6 illustrate the groundwater elevations on October 14 and November 21, 1997 respectively. The groundwater elevations measured by the piezometers indicated that the elevations inside the barrier wall were approximately five feet higher than that outside the barrier wall. This clearly demonstrates that the barrier wall has successfully isolated and contained the highly contaminated free product and groundwater inside the barrier wall.

SSND/JMM/jmm/dlp/TAB

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1252057.271801

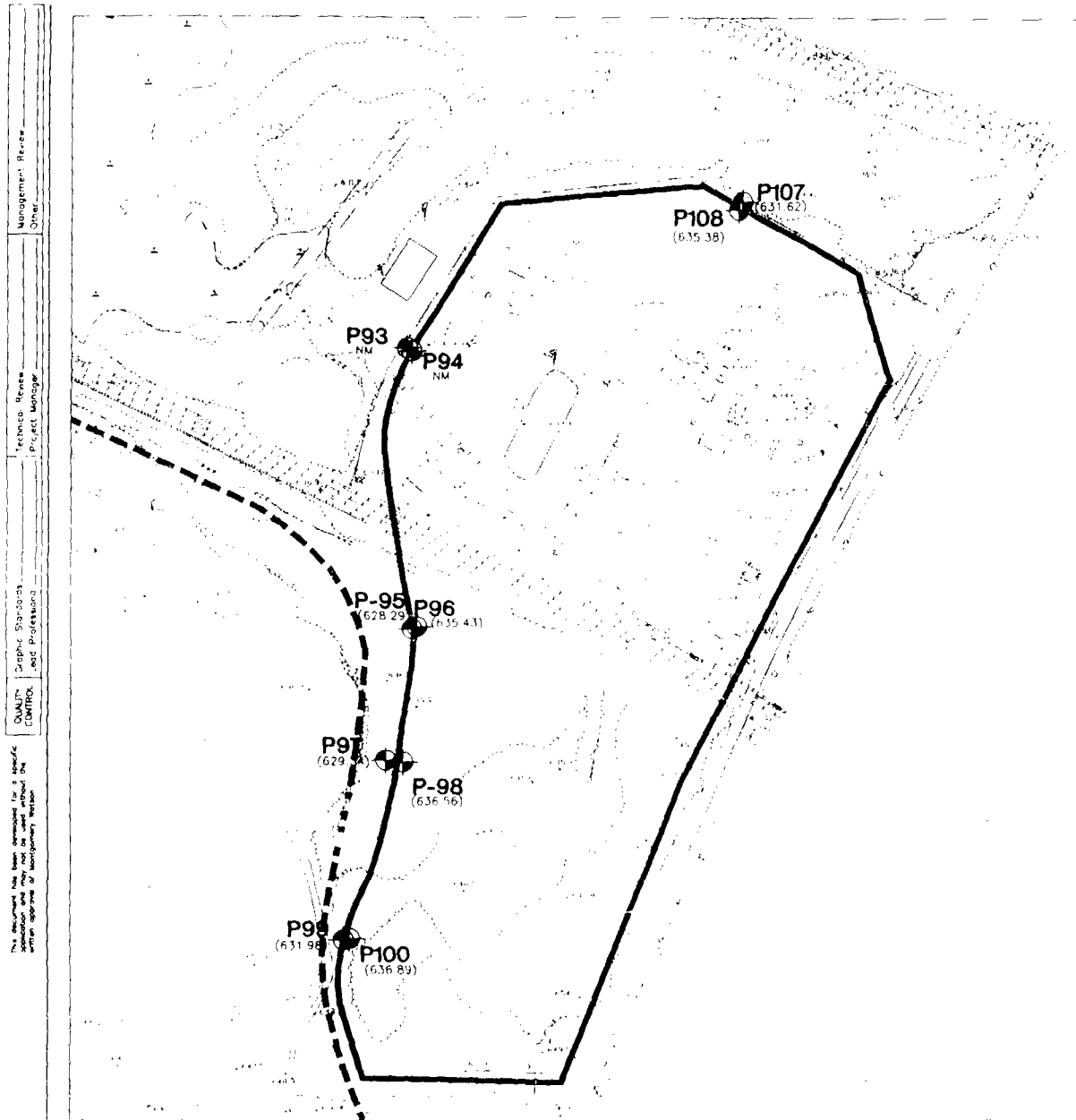
Management Review  
 Project Manager  
 Technical Review  
 Project Manager  
 QA/QC  
 Graphic Standards  
 Lead Professional  
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 application and may not be used without the  
 written approval of Montgomery Watson



QUARTERLY MONITORING REPORT  
 AMERICAN CHEMICAL SERVICE NPL SITE



FIGURE 4.1  
 PAGE 9

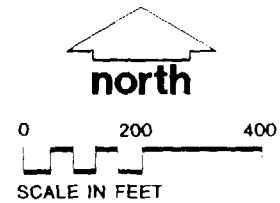


#### LEGEND

- P108 PIEZOMETER LOCATION AND DESIGNATION
- (638.12) ELEVATION
- BARRIER WALL
- GRIFFITH LANDFILL BOUNDARY
- PERIMETER GROUNDWATER CONTAMINATION PLUME
- 632 GROUNDWATER ELEVATION CONTOUR BASED ON GROUNDWATER ELEVATION DATA

#### NOTES

1. GROUNDWATER ELEVATIONS WERE MEASURED AT THE SITE ON SEPTEMBER 21, 1990

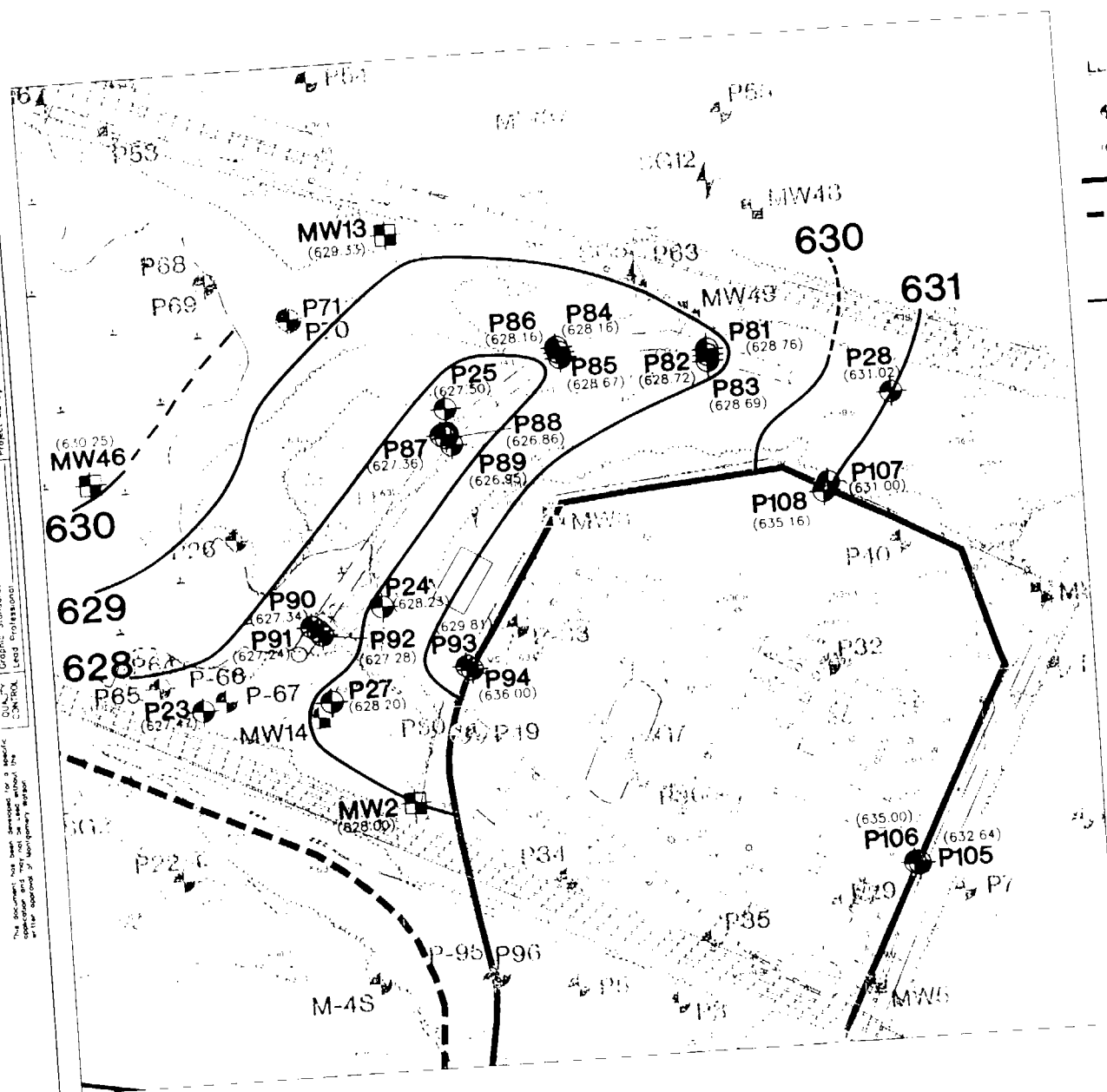


QUARTERLY MONITORING REPORT  
AMERICAN CHEMICAL SERVICE NPL SITE

MONTGOMERY  
WATSON



FIGURE 4.2

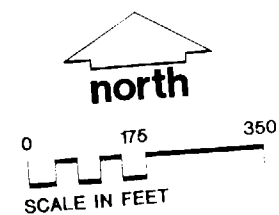


## LEGEND

- P108  
 ELEVATION  
 ELEVATION  
 BARRIER WALL  
 GROUNDWATER ELEVATION  
 PERIMETER FLOOD WATER TREATMENT  
 SYSTEM  
 GROUNDWATER ELEVATION  
 BASED ON GROUNDWATER ELEVATION  
 DATA

## NOTES

- NOTES**  
1. GROUNDWATER ELEVATIONS WERE MEASURED  
AT THE GULF BEACH TOWER 14, 1997



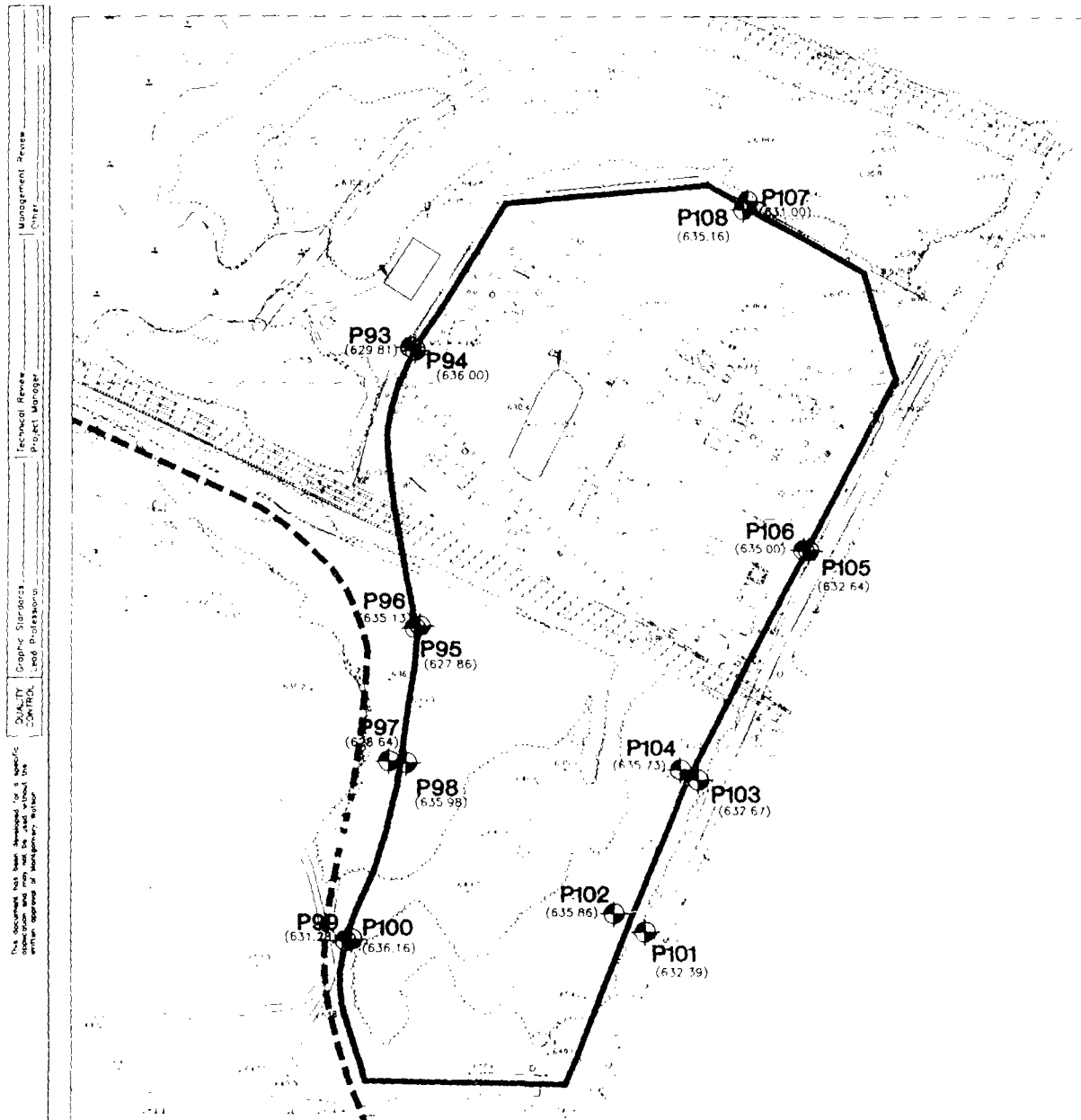
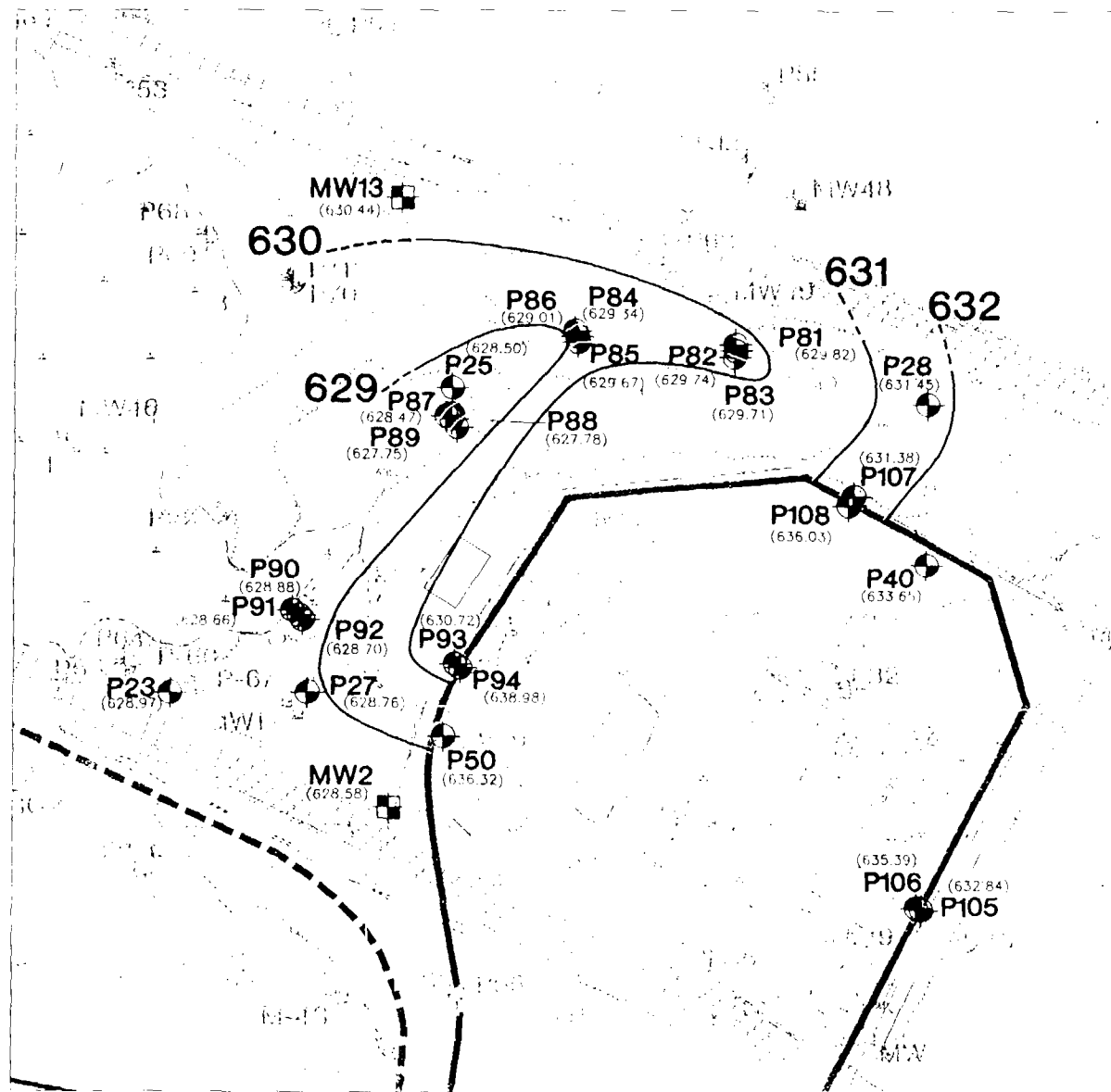


FIGURE 4.4

QUARTERLY MONITORING REPORT  
AMERICAN CHEMICAL SERVICE NPL SITE

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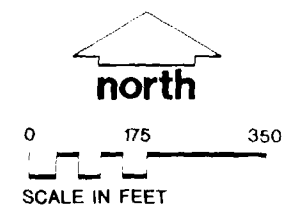


### LEGEND

- 
- P108**
- PERMEATION OF WATER AND IONS IN PLANTS**
- 632**
- GREEN WATER UPTAKE IN PLANTS**
- BASED ON GREEN WATER UPTAKE IN PLANTS DATA**

## NOTES

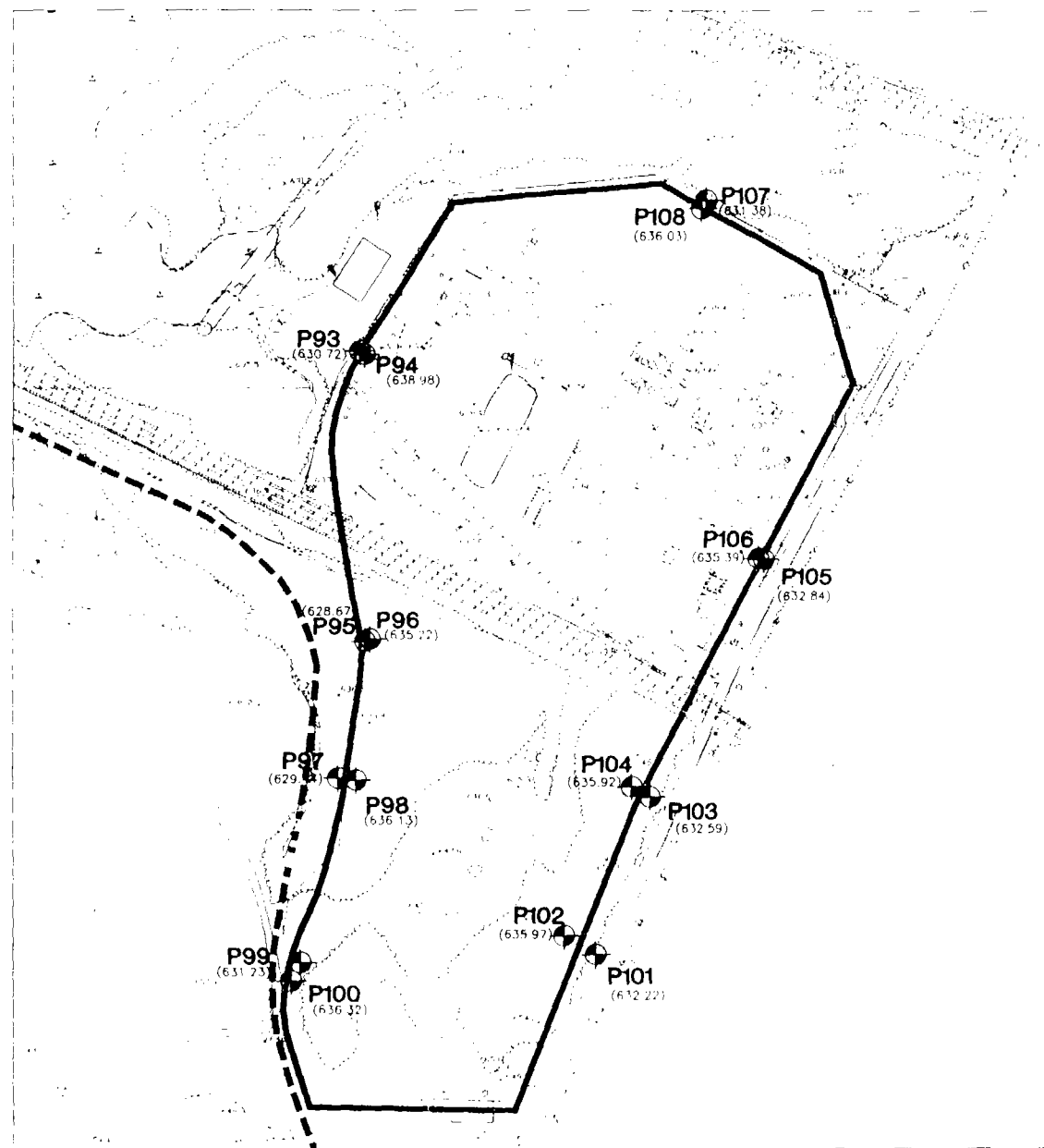
1. GROUNDWATER ELEVATIONS WERE MEASURED AT THE SITE ON NOVEMBER 22, 1991.



QUARTERLY MONITORING REPORT  
AMERICAN CHEMICAL SERVICE NPL SITE

**MONTGOMERY  
WATSON**





#### LEGEND

- P108 PIEZOMETER LOCATION AND DESIGNATION
- (638.12) ELEVATION
- BARRIER WALL
- GRIFFITH LANDFILL BOUNDARY
- 632 GROUNDWATER ELEVATION CONTOUR BASED ON GROUNDWATER ELEVATION DATA

#### NOTES

1. GROUNDWATER ELEVATION WERE MEASURED AT THE SITE ON NOVEMBER 21, 1994.

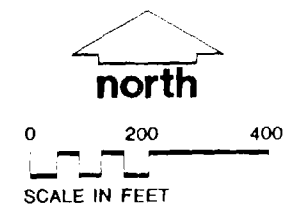


FIGURE 4.6

## **APPENDIX A**

### **ANALYTICAL DATA**

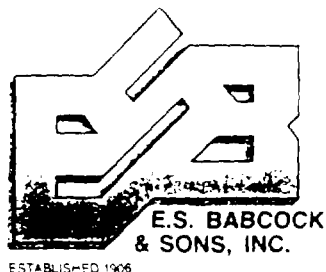
# General Chemistry

GENERAL INORGANICS

Client Name: Montgomery Watson Constructors, Inc.  
 Client ID: EFFLUENT 9/22/97  
 LAB ID: 128296-0001-SA  
 Matrix: AQUEOUS  
 Authorized: 23 SEP 97  
 Sampled: 22 SEP 97  
 Prepared: See Below  
 Received: 23 SEP 97  
 Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
pH	7.9		1.0	NA	units	150.1	NA	23 SEP 97
Total Suspended Solids	ND		1.0	10.0	mg/L	E160.2	NA	29 SEP 97

ND = Not Detected



6100 Quail Valley Court Riverside, CA 92507  
P.O. Box 432 Riverside, CA 92502  
PH (909) 653-3351 FAX (909) 653-1662  
Environmental Laboratory Certification #1156

2466-1

**Client:**

Quanterra Environmental Services  
Manny Valasquez  
1721 S. Grand Avenue

Santa Ana, CA 92705

Client I.D.: LAB#128296-0001SA

Site: MW/ACS#89

Description: EFFLUENT 09/22/97

Matrix: wastewater

Page: 1 of 1  
Lab No.: L33453-001

Date Reported: 10/01/97

Collected By:

Date: 09/22/97

Time: 0900

Submitted By: M. Nguyen

Date: 09/23/97

Time: 1408

<u>Constituent</u>	<u>Result</u>	<u>Method</u>	<u>RL</u>	<u>Date / Analyst</u>
Biochemical Oxygen Demand	29. mg/L	EPA 405.1	5.	970924/JB

ND = None detected at RL (Reporting Limit). RL units same as result.

cc:

E. S. Babcock & Sons Inc.

## GENERAL INORGANICS

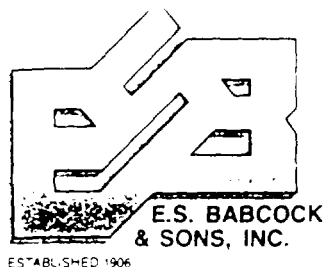
Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 10/20/97  
LAB ID: 128924-0001-SA  
Matrix: AQUEOUS  
Authorized: 21 OCT 97

Sampled: 20 OCT 97  
Prepared: See Below

Received: 21 OCT 97  
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
pH	7.8		1.0	NA	units	150.1	NA	21 OCT 97
Total Suspended Solids	ND		1.0	10.0	mg/L	E160.2	NA	23 OCT 97

ND = Not Detected



6100 Quail Valley Court Riverside, CA 92507  
P.O. Box 432 Riverside, CA 92502  
PH (909) 653-3351 FAX (909) 653-1662  
Environmental Laboratory Certification #1156

2466-1

**Client:**

Quanterra Environmental Services  
Manny Valasquez  
1721 S. Grand Avenue

Santa Ana, CA 92705

Client I.D.: 128924-0001 SA  
Site: MW/ACS  
Description: Effluent 10/20/97

Matrix: wastewater

Page: 1 of 1  
Lab No.: L34444-002

Date Reported: 10/29/97

Collected By:  
Date: 10/20/97  
Time: 0000  
Submitted By: Courier  
Date: 10/22/97  
Time: 0845

<u>Constituent</u>	<u>Result</u>	<u>Method</u>	<u>RL</u>	<u>Date / Analyst</u>
Biochemical Oxygen Demand	6. mg/L	EPA 405.1	5.	971022/JB

ND = None detected at RL (Reporting Limit). RL units same as result.

CC:

E. S. Babcock & Sons Inc.

## GENERAL INORGANICS

**PRELIMINARY DATA**  
PENDING QC, FINAL REVIEW AND APPROVAL

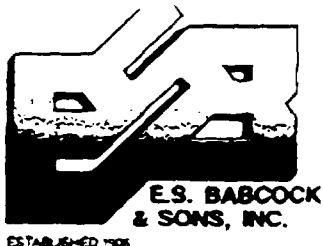
Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 11/19/97  
LAB ID: 129439-0001-SA  
Matrix: AQUEOUS  
Authorized: 20 NOV 97

Sampled: 19 NOV 97  
Prepared: See Below

Received: 20 NOV 97  
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
pH	7.0		1.0	NA	units	150.1	NA	20 NOV 97
Total Suspended Solids	ND		1.0	10.0	mg/L	E160.2	NA	24 NOV 97

ND = Not Detected



6100 Quail Valley Court Riverside, CA 92507  
P.O. Box 432 Riverside, CA 92502  
PH (909) 653-3351 FAX (909) 653-1662  
Environmental Laboratory Certification #1156

2466-1

**Client:**

Quanterra Environmental Services  
Manny Valasquez  
1721 S. Grand Avenue

Santa Ana, CA 92705

**Client I.D.:** 129439-0001 SA

**Site:** MW/ACS

**Description:** Effluent 11/19/97

**Matrix:** wastewater

Page: 1 of 1  
Lab No.: L35502-001

**Date Reported:** 12/02/97

**Collected By:**

**Date:** 11/19/97

**Time:** 0700

**Submitted By:** Courier

**Date:** 11/20/97

**Time:** 1330

<u>Constituent</u>	<u>Result</u>	<u>Method</u>	<u>RL</u>	<u>Date / Analyst</u>
Biochemical Oxygen Demand	13. mg/L	EPA 405.1	5.	971120/JLB

ND = None detected at RL (Reporting Limit). RL units same as result.

cc:

E. S. Babcock & Sons Inc.

## *Metals*

METALS  
(Water)

Client Name: Montgomery Watson Constructors, Inc.  
 Client ID: EFFLUENT 9/22/97  
 LAB ID: 128296-0001-SA  
 Matrix: AQUEOUS  
 Authorized: 23 SEP 97  
 Sampled: 22 SEP 97  
 Prepared: See Below  
 Received: 23 SEP 97  
 Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Arsenic	0.0052	J	1.0	0.010	mg/L	6010A	24 OCT 97	27 OCT 97
Beryllium	ND		1.0	0.0050	mg/L	6010A	24 OCT 97	27 OCT 97
Cadmium	ND		1.0	0.0020	mg/L	6010A	24 OCT 97	27 OCT 97
Manganese	0.028		1.0	0.015	mg/L	6010A	24 OCT 97	27 OCT 97
Mercury	ND		1.0	0.00020	mg/L	SW7470	24 OCT 97	24 OCT 97
Selenium	ND		1.0	0.0050	mg/L	6010A	24 OCT 97	27 OCT 97
Thallium	0.0067	JB	1.0	0.010	mg/L	6010A	24 OCT 97	27 OCT 97
Zinc	0.012	JB	1.0	0.020	mg/L	6010A	24 OCT 97	27 OCT 97

B = Compound is also detected in the blank.  
 J = Result is detected below the reporting limit or is an estimated concentration.  
 ND = Not Detected



Environmental  
Services

METALS  
(Water)

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 10/20/97  
LAB ID: 128924-0001-SA  
Matrix: AQUEOUS  
Authorized: 21 OCT 97

Sampled: 20 OCT 97  
Prepared: See Below

Received: 21 OCT 97  
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Arsenic	ND		1.0	0.010	mg/L	6010A	22 OCT 97	24 OCT 97
Beryllium	ND		1.0	0.0050	mg/L	6010A	22 OCT 97	24 OCT 97
Cadmium	ND		1.0	0.0020	mg/L	6010A	22 OCT 97	24 OCT 97
Manganese	0.087		1.0	0.015	mg/L	6010A	22 OCT 97	24 OCT 97
Mercury	ND		1.0	0.00020	mg/L	SW7470	22 OCT 97	23 OCT 97
Selenium	ND		1.0	0.0050	mg/L	6010A	22 OCT 97	24 OCT 97
Thallium	0.0046JB		1.0	0.010	mg/L	6010A	22 OCT 97	24 OCT 97
Zinc	0.022 B		1.0	0.020	mg/L	6010A	22 OCT 97	24 OCT 97

B = Compound is also detected in the blank

J = Result is detected below the reporting limit or is an estimated concentration.

ND = Not Detected

**PRELIMINARY DATA**  
PENDING QC, FINAL REVIEW AND APPROVAL

**METALS**  
(Water)

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 11/19/97  
LAB ID: 129439-0001-SA  
Matrix: AQUEOUS  
Authorized: 20 NOV 97

Sampled: 19 NOV 97  
Prepared: See Below

Received: 20 NOV 97  
Analyzed: See Below

Parameter	Result	Qual	DIL	RL	Units	Method	Prep Date	Analyzed Date
Arsenic	ND		1.0	0.010	mg/L	6010A	20 NOV 97	26 NOV 97
Beryllium	ND		1.0	0.0050	mg/L	6010A	20 NOV 97	26 NOV 97
Cadmium	ND		1.0	0.0020	mg/L	6010A	20 NOV 97	26 NOV 97
Manganese	0.14		1.0	0.015	mg/L	6010A	20 NOV 97	26 NOV 97
Mercury	ND		1.0	0.00020	mg/L	SW7470	26 NOV 97	26 NOV 97
Selenium	ND		1.0	0.0050	mg/L	6010A	20 NOV 97	26 NOV 97
Thallium	ND		1.0	0.010	mg/L	6010A	20 NOV 97	26 NOV 97
Inc	0.022		1.0	0.020	mg/L	6010A	20 NOV 97	26 NOV 97

ND = Not Detected

VOCs



Environmental  
Services

Volatile Organic Compounds  
Method SW8260A

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 9/22/97  
LAB ID: 128296-0001-SA  
Matrix: AQUEOUS  
Authorized: 23 SEP 97  
Instrument: GC/MS-MC  
Sampled: 22 SEP 97  
Prepared: 25 SEP 97  
Dilution: 1.0  
Received: 23 SEP 97  
Analyzed: 25 SEP 97

Parameter	Result	Qualifier	RL	Units
Benzene	0.25	J	1.0	ug/L
Bromobenzene	ND		1.0	ug/L
Bromochloromethane	ND		1.0	ug/L
Bromodichloromethane	ND		1.0	ug/L
Bromoform	ND		1.0	ug/L
Bromomethane	ND		2.0	ug/L
n-Butylbenzene	ND		1.0	ug/L
sec-Butylbenzene	ND		1.0	ug/L
Carbon tetrachloride	ND		1.0	ug/L
Chlorobenzene	ND		1.0	ug/L
Chloroethane	ND		2.0	ug/L
Chloroform	ND		1.0	ug/L
Chloromethane	0.62	J	2.0	ug/L
2-Chlorotoluene	ND		1.0	ug/L
Dibromochloromethane	ND		1.0	ug/L
1,2-Dibromo-3-chloro- propane (DBCP)	ND		2.0	ug/L
1,2-Dibromoethane (EDB)	ND		1.0	ug/L
Dibromomethane	ND		1.0	ug/L
1,2-Dichlorobenzene	ND		1.0	ug/L
1,3-Dichlorobenzene	ND		1.0	ug/L
1,4-Dichlorobenzene	ND		1.0	ug/L
Dichlorodifluoromethane	ND		2.0	ug/L
1,1-Dichloroethane	ND		1.0	ug/L
1,2-Dichloroethane	ND		1.0	ug/L
1,1-Dichloroethene	ND		5.0	ug/L
cis-1,2-Dichloroethene	ND		1.0	ug/L
trans-1,2-Dichloroethene	ND		1.0	ug/L
1,2-Dichloropropane	ND		1.0	ug/L
1,3-Dichloropropane	ND		1.0	ug/L
2,2-Dichloropropane	ND		1.0	ug/L
1,1-Dichloropropene	ND		1.0	ug/L
Ethylbenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		1.0	ug/L
Isopropylbenzene	ND		1.0	ug/L
Isopropyltoluene	ND		1.0	ug/L
Methylene chloride	ND		5.0	ug/L
Naphthalene	ND		1.0	ug/L
n-Propylbenzene	ND		1.0	ug/L
Styrene	ND		1.0	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	ug/L
Tetrachloroethene	ND		1.0	ug/L
Toluene	ND		1.0	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.  
ND = Not Detected

Volatile Organic Compounds  
Method SW8260A

(cont.)

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 9/22/97  
LAB ID: 128296-0001-SA  
Matrix: AQUEOUS  
Authorized: 23 SEP 97  
Instrument: GC/MS-MC  
Sampled: 22 SEP 97  
Prepared: 25 SEP 97  
Dilution: 1.0  
Received: 23 SEP 97  
Analyzed: 25 SEP 97

Parameter	Result	Qualifier	RL	Units
1,2,3-Trichlorobenzene	ND		1.0	ug/L
1,2,4-Trichlorobenzene	ND		1.0	ug/L
1,1,1-Trichloroethane	ND		1.0	ug/L
1,1,2-Trichloroethane	ND		1.0	ug/L
Trichloroethene	ND		1.0	ug/L
Trichlorofluoromethane	ND		2.0	ug/L
1,2,3-Trichloropropane	ND		1.0	ug/L
1,2,4-Trimethylbenzene	ND		1.0	ug/L
1,3,5-Trimethylbenzene	ND		1.0	ug/L
Vinyl chloride	ND		2.0	ug/L
m- & p-Xylenes	ND		1.0	ug/L
o-Xylene	ND		1.0	ug/L
Acetone	ND		10	ug/L
2-Butanone	ND		10	ug/L
4-Methyl-2-pentanone	ND		10	ug/L
Surrogate	Recovery		Acceptable Range	
1,2-Dichloroethane-d4	108	†	80 - 120	
Toluene-d8	109	†	80 - 120	
Bromofluorobenzene	109	†	80 - 120	

ND = Not Detected

Volatile Organic Compounds  
Method SW8260A

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 10/20/97  
LAB ID: 128924-0001-SA  
Matrix: AQUEOUS  
Authorized: 21 OCT 97  
Instrument: GC/MS-MC

Sampled: 20 OCT 97  
Prepared: 28 OCT 97  
Prep Method: SW5030

Received: 21 OCT 97  
Analyzed: 28 OCT 97  
Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Benzene	ND		1.0	ug/L
Bromobenzene	ND		1.0	ug/L
Bromochloromethane	ND		1.0	ug/L
Bromodichloromethane	ND		1.0	ug/L
Bromoform	ND		1.0	ug/L
Bromomethane	ND		2.0	ug/L
n-Butylbenzene	ND		1.0	ug/L
sec-Butylbenzene	ND		1.0	ug/L
Carbon tetrachloride	ND		1.0	ug/L
Chlorobenzene	ND		1.0	ug/L
Chloroethane	ND		2.0	ug/L
Chloroform	ND		1.0	ug/L
Chloromethane	ND		2.0	ug/L
2-Chlorotoluene	ND		1.0	ug/L
Dibromochloromethane	ND		1.0	ug/L
1,2-Dibromo-3-chloro- propane (DBCP)	ND		2.0	ug/L
1,2-Dibromoethane (EDB)	ND		1.0	ug/L
Dibromomethane	ND		1.0	ug/L
1,2-Dichlorobenzene	ND		1.0	ug/L
1,3-Dichlorobenzene	ND		1.0	ug/L
1,4-Dichlorobenzene	ND		1.0	ug/L
Dichlorodifluoromethane	ND		2.0	ug/L
1,1-Dichloroethane	ND		1.0	ug/L
1,2-Dichloroethane	ND		1.0	ug/L
1,1-Dichloroethene	ND		5.0	ug/L
cis-1,2-Dichloroethene	ND		1.0	ug/L
trans-1,2-Dichloroethene	ND		1.0	ug/L
1,2-Dichloropropane	ND		1.0	ug/L
1,3-Dichloropropane	ND		1.0	ug/L
2,2-Dichloropropane	ND		1.0	ug/L
1,1-Dichloropropene	ND		1.0	ug/L
Ethylbenzene	ND		1.0	ug/L
Hexachlorobutadiene	ND		1.0	ug/L
Isopropylbenzene	ND		1.0	ug/L
Isopropyltoluene	ND		1.0	ug/L
Methylene chloride	ND		5.0	ug/L
Naphthalene	ND		1.0	ug/L
n-Propylbenzene	ND		1.0	ug/L
Styrene	ND		1.0	ug/L
1,1,1,2-Tetrachloroethane	ND		1.0	ug/L
1,1,2,2-Tetrachloroethane	ND		1.0	ug/L
Tetrachloroethene	ND		2.0	ug/L
Toluene	ND		1.0	ug/L
1,2,3-Trichlorobenzene	ND		1.0	ug/L

ND = Not Detected

Volatile Organic Compounds  
Method SW8260A

(cont.)

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 10/20/97  
LAB ID: 128924-0001-SA  
Matrix: AQUEOUS  
Authorized: 21 OCT 97  
Instrument: GC/MS-MC

Sampled: 20 OCT 97  
Prepared: 28 OCT 97  
Prep Method: SW5030

Received: 21 OCT 97  
Analyzed: 28 OCT 97  
Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
1,2,4-Trichlorobenzene	ND		1.0	ug/L
1,1,1-Trichloroethane	ND		1.0	ug/L
1,1,2-Trichloroethane	ND		1.0	ug/L
Trichloroethene	ND		1.0	ug/L
Trichlorofluoromethane	ND		2.0	ug/L
1,2,3-Trichloropropane	ND		1.0	ug/L
1,2,4-Trimethylbenzene	ND		1.0	ug/L
1,3,5-Trimethylbenzene	ND		1.0	ug/L
Vinyl chloride	ND		2.0	ug/L
m- & p-Xylenes	ND		1.0	ug/L
o-Xylene	ND		1.0	ug/L
Acetone	ND		10	ug/L
2-Butanone	ND		10	ug/L
4-Methyl-2-pentanone	ND		10	ug/L
Surrogate	Recovery		Acceptable Range	
1,2-Dichloroethane-d4	105	†	80 - 120	
Toluene-d8	103	†	80 - 120	
Bromofluorobenzene	102	†	80 - 120	

ND = Not Detected

Volatile Organic Compounds  
Method SW8260A

**PRELIMINARY DATA**  
PENDING CC FINAL REVIEW AND APPROVAL

Client Name: Montgomery Watson Constructors, Inc.

Client ID: BFFLUENT 11/19/97

LAB ID: 129439-0001-SA

Matrix: AQUEOUS

Authorized: 20 NOV 97

Instrument: GC/MS-MC

Sampled: 19 NOV 97

Prepared: 25 NOV 97

Dilution: 2.5

Received: 20 NOV 97

Analyzed: 25 NOV 97

Parameter	Result	Qualifier	RL	Units
Benzene	0.39	J	2.5	ug/L
Bromobenzene	ND		2.5	ug/L
Bromochloromethane	ND		2.5	ug/L
Bromodichloromethane	ND		2.5	ug/L
Bromoform	ND		2.5	ug/L
Bromomethane	ND		5.0	ug/L
sec-Butylbenzene	ND		2.5	ug/L
Carbon tetrachloride	ND		2.5	ug/L
Chlorobenzene	ND		2.5	ug/L
Chloroethane	ND		5.0	ug/L
Chloroform	ND		2.5	ug/L
Chloromethane	ND		5.0	ug/L
2-Chlorotoluene	ND		2.5	ug/L
Dibromochloromethane	ND		2.5	ug/L
1,2-Dibromo-3-chloro- propane (DBCP)	ND		5.0	ug/L
1,2-Dibromoethane (EDB)	ND		2.5	ug/L
Dibromomethane	ND		2.5	ug/L
1,2-Dichlorobenzene	ND		2.5	ug/L
1,3-Dichlorobenzene	ND		2.5	ug/L
1,4-Dichlorobenzene	ND		2.5	ug/L
Dichlorodifluoromethane	ND		5.0	ug/L
1,1-Dichloroethane	ND		2.5	ug/L
1,2-Dichloroethane	ND		2.5	ug/L
1,1-Dichloroethene	ND		12	ug/L
cis-1,2-Dichloroethene	ND		2.5	ug/L
trans-1,2-Dichloroethene	ND		2.5	ug/L
1,2-Dichloropropane	ND		2.5	ug/L
1,3-Dichloropropane	ND		2.5	ug/L
2,2-Dichloropropane	ND		2.5	ug/L
1,1-Dichloropropene	ND		2.5	ug/L
Ethylbenzene	ND		2.5	ug/L
Hexachlorobutadiene	ND		2.5	ug/L
Isopropylbenzene	ND		2.5	ug/L
Isopropyltoluene	ND		2.5	ug/L
Methylene chloride	ND		12	ug/L
Naphthalene	ND		2.5	ug/L
n-Propylbenzene	ND		2.5	ug/L
Styrene	ND		2.5	ug/L
1,1,1,2-Tetrachloroethane	ND		2.5	ug/L
1,1,2,2-Tetrachloroethane	ND		2.5	ug/L
Tetrachloroethene	ND		2.5	ug/L
Toluene	ND		2.5	ug/L

J = Result is detected below the reporting limit or is an estimated concentration.

ND = Not Detected

Volatile Organic Compounds  
Method SW8260A

**PRELIMINARY DATA**  
(COPY)  
PENDING QC, FINAL REVIEW AND APPROVAL

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 11/19/97  
LAB ID: 129439-0001-SA  
Matrix: AQUEOUS  
Authorized: 20 NOV 97  
Instrument: GC/MS-MC

Sampled: 19 NOV 97  
Prepared: 25 NOV 97  
Dilution: 2.5

Received: 20 NOV 97  
Analyzed: 25 NOV 97

Parameter	Result	Qualifier	RL	Units
1,2,3-Trichlorobenzene	ND		2.5	ug/L
1,2,4-Trichlorobenzene	ND		2.5	ug/L
1,1,1-Trichloroethane	ND		2.5	ug/L
1,1,2-Trichloroethane	ND		2.5	ug/L
Trichloroethene	ND		2.5	ug/L
Trichlorofluoromethane	ND		5.0	ug/L
2,3-Trichloropropane	ND		2.5	ug/L
2,4-Trimethylbenzene	ND		2.5	ug/L
1,3,5-Trimethylbenzene	ND		2.5	ug/L
Vinyl chloride	ND		5.0	ug/L
m- & p-Xylenes	ND		2.5	ug/L
o-Xylene	ND		2.5	ug/L
Acetone	170		25	ug/L
2-Butanone	ND		25	ug/L
4-Methyl-2-pentanone	ND		25	ug/L

Surrogate	Recovery		Acceptable Range
1,2-Dichloroethane-d4	98	‡	80 - 120
Toluene-d8	92	‡	80 - 120
Bromofluorobenzene	100	‡	80 - 120

ND = Not Detected

*SVOCs*

Semivolatile Organic Compounds  
Appendix IX List  
Method 8270

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 9/22/97  
LAB ID: 128296-0001-SA  
Matrix: AQUEOUS  
Authorized: 23 SEP 97  
Instrument: GC/MS-ME

Sampled: 22 SEP 97  
Prepared: 23 SEP 97  
Dilution: 1.0

Received: 23 SEP 97  
Analyzed: 27 SEP 97

Parameter	Result	Qualifier	RL	Units
N-Nitrosodimethylamine	ND			
Aniline	ND			
Phenol	15		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
1,3-Dichlorobenzene	ND		10	ug/L
1,4-Dichlorobenzene	ND		10	ug/L
Benzyl alcohol	ND		10	ug/L
1,2-Dichlorobenzene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
bis(2-Chloroisopropyl)-ether	ND		10	ug/L
3/4-Methylphenol	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Hexachloroethane	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Isophorone	ND		10	ug/L
2-Nitrophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
Benzoic acid	ND		10	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
1,2,4-Trichlorobenzene	ND		10	ug/L
Naphthalene	ND		50	ug/L
4-Chloroaniline	ND		10	ug/L
Hexachlorobutadiene	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		10	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4,5-Trichlorophenol	ND		10	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
Dimethyl phthalate	ND		10	ug/L
Acenaphthylene	ND		50	ug/L
1-Nitroaniline	ND		10	ug/L
Acenaphthene	ND		50	ug/L
2,4-Dinitrophenol	ND		10	ug/L
4-Nitrophenol	ND		10	ug/L
Dibenzofuran	ND		50	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		50	ug/L
Diethyl phthalate	ND		50	ug/L
1,2-Diphenylhydrazine	ND		10	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L
	ND		10	ug/L
	ND		50	ug/L
	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds  
Appendix IX List  
Method 8270

(cont.)

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 9/22/97  
LAB ID: 128296-0001-SA  
Matrix: AQUEOUS  
Authorized: 23 SEP 97  
Instrument: GC/MS-ME  
Sampled: 22 SEP 97  
Prepared: 23 SEP 97  
Dilution: 1.0  
Received: 23 SEP 97  
Analyzed: 27 SEP 97

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
Hexachlorobenzene	ND		10	ug/L
Phenanthrene	ND		10	ug/L
Anthracene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L
Pyrene	ND		10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
Benzo(a)anthracene	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
2-Picoline	ND		20	ug/L
Ethyl methanesulfonate	ND		10	ug/L
Acetophenone	ND		10	ug/L
N-Nitrosopiperidine	ND		10	ug/L
a,a-Dimethylphenethyl-amine	ND		50	ug/L
2,6-Dichlorophenol	ND		10	ug/L
N-Nitroso-di-n-butylamine	ND		10	ug/L
1,2,4,5-Tetrachloro-benzene	ND		10	ug/L
Pentachlorobenzene	ND		10	ug/L
1-Naphthylamine	ND		10	ug/L
2-Naphthylamine	ND		10	ug/L
2,3,4,6-Tetrachlorophenol	ND		50	ug/L
Phenacetin	ND		20	ug/L
4-Aminobiphenyl	ND		50	ug/L
Pronamide	ND		20	ug/L
Pentachloronitrobenzene	ND		50	ug/L
p-Dimethylaminoazobenzene	ND		20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND		20	ug/L
Benzidine	ND		100	ug/L
1-Chloronaphthalene	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds  
Appendix IX List  
Method 8270

(cont.)

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 9/22/97  
LAB ID: 128296-0001-SA  
Matrix: AQUEOUS  
Authorized: 23 SEP 97  
Instrument: GC/MS-ME  
Sampled: 22 SEP 97  
Prepared: 23 SEP 97  
Dilution: 1.0  
Received: 23 SEP 97  
Analyzed: 27 SEP 97

Parameter	Result	Qualifier	RL	Units
Dibenz(a,j)acridine	ND		20	ug/L
Surrogate	Recovery		Acceptable Range	
2-Fluorophenol	37	†	21 - 100	
Phenol-d5	24	†	10 - 94	
Nitrobenzene-d5	64	†	34 - 114	
2-Fluorobiphenyl	66	†	43 - 116	
2,4,6-Tribromophenol	62	†	10 - 123	
Terphenyl-d14	64	†	33 - 141	

ND = Not Detected

Semivolatile Organics  
Selected Ion Monitoring  
Method SW8270-SIM

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 9/22/97  
LAB ID: 128296-0001-SA  
Matrix: AQUEOUS  
Authorized: 23 SEP 97  
Instrument: GC/MS-MI

Sampled: 22 SEP 97  
Prepared: 23 SEP 97  
Dilution: 1.0

Received: 23 SEP 97  
Analyzed: 02 OCT 97

Parameter	Result	Qualifier	RL	Units
Pentachlorophenol	ND		1.0	ug/L

ND = Not Detected

Semivolatile Organic Compounds  
Appendix IX List  
Method 8270

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 10/20/97  
LAB ID: 128924-0001-SA  
Matrix: AQUEOUS  
Authorized: 21 OCT 97  
Instrument: GC/MS-MA

Sampled: 20 OCT 97  
Prepared: 24 OCT 97  
Prep Method: SW3510

Received: 21 OCT 97  
Analyzed: 28 OCT 97  
Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
N-Nitrosodimethylamine	ND		10	ug/L
Aniline	ND		10	ug/L
Phenol	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
1,3-Dichlorobenzene	ND		10	ug/L
1,4-Dichlorobenzene	ND		10	ug/L
Benzyl alcohol	ND		10	ug/L
1,2-Dichlorobenzene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
bis(2-Chloroisopropyl)-ether	ND		10	ug/L
3/4-Methylphenol	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Hexachloroethane	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Isophorone	ND		10	ug/L
2-Nitrophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
Benzoic acid	ND		50	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
1,2,4-Trichlorobenzene	ND		10	ug/L
Naphthalene	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
Hexachlorobutadiene	ND		10	ug/L
4-Chloro-3-methylphenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4,5-Trichlorophenol	ND		50	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
Dimethyl phthalate	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
3-Nitroaniline	ND		50	ug/L
Acenaphthene	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Dibenzofuran	ND		10	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
1,2-Diphenylhydrazine	ND		50	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds  
Appendix IX List  
Method 8270

(cont.)

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 10/20/97  
LAB ID: 128924-0001-SA  
Matrix: AQUEOUS  
Authorized: 21 OCT 97  
Instrument: GC/MS-MA  
Sampled: 20 OCT 97  
Prepared: 24 OCT 97  
Prep Method: SW3510  
Received: 21 OCT 97  
Analyzed: 28 OCT 97  
Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Fluorene	ND		10	ug/L
4-Nitroaniline	ND		50	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
N-Nitrosodiphenylamine	ND		10	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
Hexachlorobenzene	ND		10	ug/L
Phenanthrene	ND		10	ug/L
Anthracene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L
Pyrene	ND		10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		50	ug/L
Benzo(a)anthracene	ND		10	ug/L
bis(2-Ethylhexyl)-phthalate	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
2 Picoline	ND		20	ug/L
Ethyl methanesulfonate	ND		10	ug/L
Acetophenone	ND		10	ug/L
N-Nitrosopiperidine	ND		10	ug/L
a,a-Dimethylphenethyl-amine	ND		50	ug/L
2,6-Dichlorophenol	ND		10	ug/L
N-Nitroso-di-n-butylamine	ND		10	ug/L
1,2,4,5-Tetrachloro-benzene	ND		10	ug/L
Pentachlorobenzene	ND		10	ug/L
1-Naphthylamine	ND		10	ug/L
2-Naphthylamine	ND		10	ug/L
2,3,4,6-Tetrachlorophenol	ND		50	ug/L
Phenacetin	ND		20	ug/L
4-Aminobiphenyl	ND		50	ug/L
Pronamide	ND		20	ug/L
Pentachloronitrobenzene	ND		50	ug/L
p-Dimethylaminoazobenzene	ND		20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND		20	ug/L
Benzidine	ND		100	ug/L
1-Chloronaphthalene	ND		10	ug/L
Dibenz(a,j)acridine	ND		20	ug/L

ND = Not Detected

Semivolatile Organic Compounds  
Appendix IX List  
Method 8270

(cont.)

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 10/20/97  
LAB ID: 128924-0001-SA  
Matrix: AQUEOUS  
Authorized: 21 OCT 97  
Instrument: GC/MS-MA  
Sampled: 20 OCT 97  
Prepared: 24 OCT 97  
Prep Method: SW3510  
Received: 21 OCT 97  
Analyzed: 28 OCT 97  
Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Surrogate	Recovery		Acceptable Range	
2-Fluorophenol	41	†	21 - 100	
Phenol-d5	23	†	10 - 94	
Nitrobenzene-d5	70	†	34 - 114	
2-Fluorobiphenyl	66	†	43 - 116	
2,4,6-Tribromophenol	73	†	10 - 123	
Terphenyl-d14	66	†	33 - 141	

Semivolatile Organics  
Selected Ion Monitoring  
Method SW8270-SIM

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 10/20/97  
LAB ID: 128924-0001-SA  
Matrix: AQUEOUS  
Authorized: 21 OCT 97  
Instrument: GC/MS-ME

Sampled: 20 OCT 97  
Prepared: 24 OCT 97  
Prep Method: SW3510

Received: 21 OCT 97  
Analyzed: 29 OCT 97  
Dilution: 1.0

Parameter	Result	Qualifier	RL	Units
Pentachlorophenol	ND		1.0	ug/L

ND = Not Detected

Semivolatile Organic Compounds  
Appendix IX List  
Method 8270

**PRELIMINARY DATA**  
PENDING QC, FINAL REVIEW AND APPROVAL

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 11/19/97  
LAB ID: 129439-0001-SA  
Matrix: AQUEOUS  
Authorized: 20 NOV 97  
Instrument: GC/MS-MA

Sampled: 19 NOV 97  
Prepared: 21 NOV 97  
Dilution: 1.0

Received: 20 NOV 97  
Analyzed: 26 NOV 97

Parameter	Result	Qualifier	RL	Units
N-Nitrosodimethylamine	ND		10	ug/L
Aniline	ND		10	ug/L
Phenol	ND		10	ug/L
bis(2-Chloroethyl) ether	ND		10	ug/L
2-Chlorophenol	ND		10	ug/L
1,3-Dichlorobenzene	ND		10	ug/L
1,4-Dichlorobenzene	ND		10	ug/L
Benzyl alcohol	ND		10	ug/L
1,2-Dichlorobenzene	ND		10	ug/L
2-Methylphenol	ND		10	ug/L
bis(2-Chloroisopropyl)-ether	ND		10	ug/L
3,4-Methylphenol	ND		10	ug/L
N-Nitroso-di-n-propylamine	ND		10	ug/L
Hexachloroethane	ND		10	ug/L
Nitrobenzene	ND		10	ug/L
Isophorone	ND		10	ug/L
2-Nitrophenol	ND		10	ug/L
2,4-Dimethylphenol	ND		10	ug/L
Benzoic acid	ND		50	ug/L
bis(2-Chloroethoxy)-methane	ND		10	ug/L
2,4-Dichlorophenol	ND		10	ug/L
1,2,4-Trichlorobenzene	ND		10	ug/L
Naphthalene	ND		10	ug/L
4-Chloroaniline	ND		10	ug/L
Hexachlorobutadiene	ND		10	ug/L
2-Chloro-3-methylphenol	ND		10	ug/L
2-Methylnaphthalene	ND		10	ug/L
Hexachlorocyclopentadiene	ND		50	ug/L
2,4,6-Trichlorophenol	ND		10	ug/L
2,4,5-Trichlorophenol	ND		50	ug/L
2-Chloronaphthalene	ND		10	ug/L
2-Nitroaniline	ND		50	ug/L
Dimethyl phthalate	ND		10	ug/L
Acenaphthylene	ND		10	ug/L
3-Nitroaniline	ND		50	ug/L
Acenaphthene	ND		10	ug/L
2,4-Dinitrophenol	ND		50	ug/L
4-Nitrophenol	ND		50	ug/L
Dibenzofuran	ND		10	ug/L
2,4-Dinitrotoluene	ND		10	ug/L
2,6-Dinitrotoluene	ND		10	ug/L
Diethyl phthalate	ND		10	ug/L
1,2-Diphenylhydrazine	ND		50	ug/L
4-Chlorophenyl phenyl ether	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds  
Appendix IX List  
Method 8270

**PRELIMINARY DATA**  
PENDING QC, FINAL REVIEW AND APPROVAL

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 11/19/97  
LAB ID: 129439-0001-SA  
Matrix: AQUEOUS  
Authorized: 20 NOV 97  
Instrument: GC/MS-MA

Sampled: 19 NOV 97  
Prepared: 21 NOV 97  
Dilution: 1.0

Received: 20 NOV 97  
Analyzed: 26 NOV 97

Parameter	Result	Qualifier	RL	Units
Fluorene	ND			
4-Nitroaniline	ND		10	ug/L
4,6-Dinitro-2-methylphenol	ND		50	ug/L
N-Nitrosodiphenylamine	ND		50	ug/L
4-Bromophenyl phenyl ether	ND		10	ug/L
1,2-Dichlorobenzene	ND		10	ug/L
1-Methylnaphthalene	ND		10	ug/L
Anthracene	ND		10	ug/L
Di-n-butyl phthalate	ND		10	ug/L
Fluoranthene	ND		10	ug/L
Pyrene	ND		10	ug/L
Butyl benzyl phthalate	ND		10	ug/L
3,3'-Dichlorobenzidine	ND		10	ug/L
Benzo(a)anthracene	ND		50	ug/L
bis(2-Ethylhexyl)-phthalate	ND		10	ug/L
Chrysene	ND		10	ug/L
Di-n-octyl phthalate	ND		10	ug/L
Benzo(b)fluoranthene	ND		10	ug/L
Benzo(k)fluoranthene	ND		10	ug/L
Benzo(a)pyrene	ND		10	ug/L
Indeno(1,2,3-c,d)pyrene	ND		10	ug/L
Dibenz(a,h)anthracene	ND		10	ug/L
Benzo(g,h,i)perylene	ND		10	ug/L
2-Picoline	ND		10	ug/L
Phenyl methanesulfonate	ND		20	ug/L
Acetophenone	ND		10	ug/L
N-Nitrosopiperidine	ND		10	ug/L
N,N-Dimethylphenethylamine	ND		10	ug/L
2,6-Dichlorophenol	ND		50	ug/L
N-Nitroso-di-n-butylamine	ND		10	ug/L
1,2,4,5-Tetrachloro-benzene	ND		10	ug/L
Pentachlorobenzene	ND		10	ug/L
1-Naphthylamine	ND		10	ug/L
2-Naphthylamine	ND		10	ug/L
2,3,4,6-Tetrachlorophenol	ND		10	ug/L
Phenacetin	ND		50	ug/L
4-Aminobiphenyl	ND		20	ug/L
Pronamide	ND		50	ug/L
Pentachloronitrobenzene	ND		20	ug/L
p-Dimethylaminoazobenzene	ND		50	ug/L
7,12-Dimethylbenz(a)-anthracene	ND		20	ug/L
Benztidine	ND		20	ug/L
1-Chloronaphthalene	ND		100	ug/L
	ND		10	ug/L

ND = Not Detected

Semivolatile Organic Compounds  
Appendix IX List  
Method 8270**PRELIMINARY DATA**  
PENDING QC, FINAL REVIEW AND APPROVAL

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 11/19/97  
LAB ID: 129439-0001-SA  
Matrix: AQUEOUS  
Authorized: 20 NOV 97  
Instrument: GC/MS-MA

Sampled: 19 NOV 97  
Prepared: 21 NOV 97  
Dilution: 1.0

Received: 20 NOV 97  
Analyzed: 26 NOV 97

Parameter	Result	Qualifier	RL	Units
Dibenz(a,j)acridine	ND		20	ug/L
Surrogate	Recovery		Acceptable Range	
2-Fluorophenol	34	%	21 - 100	
Phenol-d5	21	%	10 - 94	
Atrobenzene-d5	63	%	34 - 114	
1-Fluorobiphenyl	62	%	43 - 116	
2,4,6-Tribromophenol	64	%	10 - 123	
Terphenyl-d14	69	%	33 - 141	

ND = Not Detected

Semivolatile Organics  
Selected Ion Monitoring  
Method SW8270-SIM

**PRELIMINARY DATA**  
PENDING QC, FINAL REVIEW AND APPROVAL

Client Name: Montgomery Watson Constructors, Inc.  
Client ID: EFFLUENT 11/19/97  
LAB ID: 129439-0001-SA  
Matrix: AQUEOUS  
Authorized: 20 NOV 97  
Instrument: GC/MS-MA

Sampled: 19 NOV 97  
Prepared: 21 NOV 97  
Dilution: 1.0

Received: 20 NOV 97  
Analyzed: 05 DEC 97

Parameter	Result	Qualifier	RL	Units
Pentachlorophenol	ND		1.0	ug/L

ND = Not Detected